

MSEC 2000

PAKISTAN



# Joint Typhoon Warning Center

INDIA

OMAN

Arabian Sea

Meteorological Satellite  
Coordinator's (MSC)  
Conference (MSCC)  
Guidelines/Goals  
(Why are you here?)

Capt Tim Parsons





# Overview

- MSCC Attendees/Goals
- Governing Requirements and Guidelines
  - USCINCPACINST 3140.1 series
  - PACAF Instruction 15-102
- JTWC Mission/Organization
- TDO Requirements
- TCSR Mission



# Attendees

- Meteorological Satellite Coordinators
  - Air Force meteorologist with some tropical experience
  - Typically 1st Lieutenant
- Satellite Analysts
  - AF certified weather technician with tropical experience
  - Forecaster certified, typically E-4 to E-6 or civilian
- Researchers
  - Often prior service, extensive tropical experience



# MSC Conference Goals

- Discuss state of the science in the TCSR Network
- Discuss new techniques and capabilities
- Discuss procedural issues
- Develop closer working relationships among participants and agencies





# Governing Documents

- USCINCPACINST 3140.1 series
  - “Tropical Cyclone Operations Manual”
  - Currently 3140.1 W with 2 changes
  - Joint document providing CINC’s guidance
    - Requires USAF and USN concurrence to change
    - Changes must be approved through MG USPACOM
  - Defines roles and responsibilities of USAF / USN
    - USN: Warnings and infrastructure
    - USAF: Reconnaissance
    - Both: Personnel



# Governing Documents, cont'd

- PACAF Instruction 15-102
  - "Tropical Cyclone Reconnaissance"
  - MAJCOM document providing PACAF/DOW guidance
    - Updated annually by PACAF/DOWV with inputs from
      - JTWC SATOPS
      - AFWA/XOGM
      - MG USPACOM
  - Defines specific reconnaissance areas of responsibility and tasks specific units to perform TC fixes





# Mission

- JTWC
  - Continuous monitoring of all tropical weather activity in the JTWC AOR and prompt issuance of appropriate advisories, and alerts
  - Prompt issuance of warnings on all significant tropical cyclones in the AOR
  - Determination of requirements for TC reconnaissance
  - Post storm analysis of significant TCs within the western North Pacific and North Indian Oceans
- Tropical Cyclone Satellite Reconnaissance System(TCSRS) Network
  - Conduct 24-hour meteorological watch on all tropical and subtropical disturbances within the JTWC and NPMOC (area within GMS satellite coverage) AORs. Report positions, estimated intensities and warning criteria wind radii of significant tropical cyclones in these regions.



# Organization

- SATOPS -- Det 1, PACAF AOS
- Alternate SATOPS -- AFWA/XOOGM
- Direct-readout Network Sites
  - Yongsan
  - Kadena
  - Hickam
  - Diego Garcia
- Camp Springs (not an official member site)





# TDO Sat Recon Reqmt's

- Purpose of TC Satellite Reconnaissance
- Reconnaissance imagery requirements
- Use of TC fixes in the warning process
- Ways to improve fix usefulness



# Purpose of TC Sat Recon

To assist the Typhoon Duty Officer in determining the *position* and *estimated intensity* of the tropical cyclone at a point in time





# Recon Imagery Requirements

- Imagery used in support of JTWC warnings must:
  - Have sufficient *resolution* to discern the important meteorological features
    - $\leq 1.5\text{km}$  visible
    - $\leq 5\text{ km}$  infrared
    - $\leq 15\text{ km}$  microwave
  - Be precisely *geo-navigated* (each pixel tied to a specific lat/lon point relative to the earth's surface) to provide accurate position information



# Use in the Warning Process

- TDO has the following order of precedence
  - Fixes within the warning window
    - 1 hour before to 1/2 hour after warning valid time
    - For a 00Z warning, fixes from 23Z to 0030Z
  - Platform desirability:
    - DMSP high-res visible/infrared
    - GMS-5
    - METEOSAT-5/7
    - NOAA
    - TRMM
    - SCAT
  - Fixes outside the warning window





# Use in the warning process, continued

- Feeds in to:
  - Current warning position and intensity
  - Objective best track
  - Synthetic vortex (bogus) insertion
  - Numerical model guidance (persistence)



# Ways to improve fix usefulness to TDO

- Timeliness (inside warning window)
- Remarks, remarks, remarks

0927

TPPS10 PGTW 200922

A. TROPICAL STORM IVAN (11W)

B. 20/0830Z

C. 11.2S/4

D. 138.3E/5

E. SIX/SATELLITE

F. T2.5/2.5/D1.0/24HRS (20/0530Z)

G. IR/EIR/ LLCC

38A/ PBO SBC/ANMTN.

MILD-MANNERED CALVIN

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38A/ PBO SBC/ANMTN. SBC VERY LOOSE.

OUTFLOW FAIR ALQDS. SYSTEM BCMG MORE

ORGANIZED AS OUTFLOW IMPROVES. AMOUNT

OF DEEP CNVCTN INCRSG AND CLOUD TOP TEMPS

CONT TO COOL.

STUPENDOUS MAN





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